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09/613,527	07/10/2000	Hiroaki Sudo	JEL 31211	9543

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EXAMINER

SEFCHECK, GREGORY B

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/613,527

Applicant(s)

SUDO, HIROAKI

Examiner

Gregory B Sefcheck

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- The Applicant's Amendment filed 4/15/2004 is acknowledged.
- Claims 1-7 are cancelled.
- Newly presented claims 8-14 are pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In regards to Claims 8-14,

The multiplexer of claims 8 and 11-13, which subjects a plurality of transmission signals and a known signal to frequency division multiplexing, and the receiver of claims 10-14, which receives the multiplexed signal, are indefinite.

It is unclear what is meant by "assigning/receiving one/separate chip data signal string per subcarrier" because, also in the claims, it is stated "information from each of the transmission signals and known signal is multiplexed into each/every chip assigned to a different subcarrier." The combination of these statements makes it confusing as to

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how the transmission signals and known signal are broken up into chips and assigned to subcarriers by the multiplexer before transmission.

- Claim 9 is rejected because it depends from Claim 8.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 8-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Miya (US006175558B1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

- In regards to Claims 8 and 10-14,

Referring to Figs. 4 and 7, Miya discloses an apparatus and method for transmitting and receiving a multiplexed signal having a plurality of signals and a known signal (claim 10/14 - receiver/reception method for receiving a multiplexed signal having a plurality of signals and a known signal; claim 11 - communications terminal apparatus comprising the transmitter and receiver). Miya discloses that such an apparatus can be used in radio communication between a base station and a mobile station provided with such transmitting and receiving capabilities (Col. 10-11, lines 66-5; claim 12 - base station apparatus in radio communication with communication terminal apparatus).

The apparatus and method of Miya comprises spreaders 103-1/403-1 through 103-N/403-N for spreading and de-spreading transmission data signals 1-N using different spread codes 1-N (Col. 4, lines 30-32; claim 8/13 - transmitter/transmission method having first spreader/spreading step for spreading a plurality of transmission signals using different codes; claim 10/14 - first demodulator/demodulating step for de-spreading the plurality of signals using the transmission spreading code).

Also shown is a second spreader/spreading step 103-0 using a different spreading code 0 (Col. 5, lines 13-17) used to spread and de-spread a pilot signal (known signal; claim 8/13 - second spreader/spreading step for spreading a known signal with a different code; claim 10/14 - second demodulator/demodulating step for de-spreading the known signal).

Multiplex circuit 106 breaks down the transmission spread signals into a multiplexed signal having $N+1$ channels, each containing pilot signal information, before

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transmission (Fig. 2; Col. 1, lines 16-25, 38-45; claim 8/13 – multiplexer breaks down tx signals and known signals into individual chips, assigning one chip per subcarrier; claim 8/13 - transmitter/transmitting step for transmitting after multiplexing spread signals using FDM; claim 8/13 – information from each signal and known signal multiplexed into every chip assigned to a different subcarrier).

Miya further shows a line condition inference circuit 406 (phase error detector/detecting step) that infers phases (residual phase error) of the received signal using the received PL signal and the period of the PL signal (Col. 5/6, lines 55-5; claim 10/14 - phase error detector/detecting step using known signal and received known signal to detect residual error).

A synchronous detection circuit 407 (phase compensator/compensating step) is also disclosed that uses the phase information (residual phase error) inferred from the PL signal to synchronize (phase compensate) each of the plurality of transmission signals (Col. 6, lines 1-5; claim 10/14 - phase compensator/compensating step for each reception signal using residual phase error).

- In regards to Claim 9,

Miya discloses a transmitting apparatus that covers all limitations of the parent claim. Miya discloses a PL signal (known signal) that is transmitted in a strong electric power compared to a channel transmitting other information data (Col. 2, lines 8-11; Col. 6, lines 39-57; claim 9 - known signal level is higher than level of transmission data signals).

Response to Arguments

5. Applicant's arguments filed 4/15/2004 have been fully considered but they are not persuasive.

- On page 12 of the Remarks, the Applicant contends that Miya does not disclose "assigning one chip data signal string per subcarrier for transmission."

It is the Examiner's opinion that Miya does disclose this feature by separating the spread transmitting data into $N+1$ channels and modulated by multiplex circuit 106 prior to transmission, as shown in Fig. 5.

- On page 13 of the Remarks, the Applicant contends that Miya does not disclose "information from each of the transmission signals and a known signal is multiplexed into every chip assigned to a different subcarrier."

It is the Examiner's opinion that Miya, with reference to Fig. 2 and Col. 2, lines 23-27, discloses inserting the pilot signal into each channel of the information data.

- On page 14 of the Remarks, the Applicant contends that Miya fails to disclose the features of claims 10-12 and 14 in a single embodiment.

It is the Examiner's opinion that the features of Miya are disclosed separately with respect to the various elements of the invention, such as transmitter, receiver, and method, but that these various elements constitute a single embodiment. The various embodiments identified by the Applicant describe environments and situations in which the apparatuses and methods of Miya could be applied, such as a base station in a mobile network.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 703-305-0633. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
6-17-2004


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